

Name: _____

Triangle Angle Relations

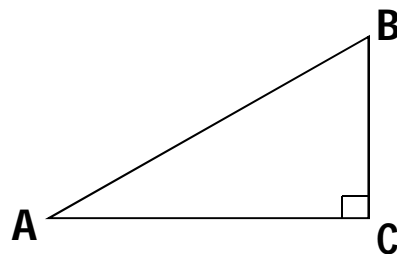
Which side is the **HYPOTENUSE**?

Which side is **OPPOSITE** from angle **A**?

Which side is **ADJACENT** to angle **A**?

Which side is **OPPOSITE** from angle **B**?

Which side is **ADJACENT** to angle **B**?



INVESTIGATION:

1. Draw a vertical line **anywhere you want** along angle A (use a protractor to make sure you have a 90-degree angle at the bottom!). Your triangle should be a different size than other students.
2. Label the right angle with a "C" and the top vertex of your triangle with a "B" – it should be labeled just like the triangle at the top of this page.
3. Use a protractor and ruler to find the following measurements for your triangle:

$m\angle A = \underline{\hspace{2cm}}^\circ$

$m\angle B = \underline{\hspace{2cm}}^\circ$

$AB = \underline{\hspace{2cm}} \text{ cm}$

$BC = \underline{\hspace{2cm}} \text{ cm}$

$AC = \underline{\hspace{2cm}} \text{ cm}$

A

4. Now we will form RATIOS of sides. Divide on your calculator and round to two decimal places.

From $\angle A$: $\frac{\text{opposite side}}{\text{hypotenuse}} =$ $\frac{\text{adjacent side}}{\text{hypotenuse}} =$ $\frac{\text{opposite side}}{\text{adjacent side}} =$

From $\angle B$: $\frac{\text{opposite side}}{\text{hypotenuse}} =$ $\frac{\text{adjacent side}}{\text{hypotenuse}} =$ $\frac{\text{opposite side}}{\text{adjacent side}} =$

5. Compare answers with classmates around you!
 - a. What do you notice about the ANGLE measures of your triangles?
 - b. What do you notice about the SIDE lengths of your triangles?
 - c. What do you notice about the RATIOS of side lengths you calculated above?
6. Is there a geometric concept we can use to explain why this is true?